

HTML

- HyperText Markup Language
- An SGML application
 - (Standardized General Markup Language)
 - HTML is an instance of an SGML language specifically intended to markup general types of documents.
 - a compromise
 - SGML applications intended to be more specific
 - e.g., recipe markup, resume markup
- Now XHTML = an XML Application

Content not Format

- Originally, HTML, as inspired by SGML, was intended to markup content, not specify formatting instructions.
 - [resume.html](#)
- The job of the Web browser is to render the marked-up content into human-readable output.
- In addition, SGML always assumed the presence of tools to create the SGML as well as display it.
 - Same with HTML: but, many prefer straight text editing because of tool limitations.

Trouble in Paradise

- Unfortunately, SGML, though complex, was correct in its assumption that different types of documents needed different markup languages
 - e.g., Resumes, cookbooks, Shakespearean plays, ...
 - resume.xml

Format not Content

- HTML quickly 'degenerated' into a markup language for format
 - something for which it was not designed
- Graphic designers starting to work on the Web were horrified at the lack of expressibility.
 - Used hacks:
 - e.g., "pouring" of text into tables for precise paragraph layout
 - e.g., using 1-pixel transparent images for precise spacing and alignment
- 2 warring factions ('html purists' and designers)
- Designers won

A Temporary Truce

- CSS (cascading Style Sheets)
- Allows graphic designers much better control over formatting.
- Separate file for detailed formatting instructions from the HTML markup.
 - Designers were happy:
 - more control over formatting
 - Purists were happy:
 - removes the requirement for further formatting tags from HTML proper (a battle purists were headed towards defeat on anyways)

XML: The Solution

- Realizing that they were going to lose anyways, purists abandoned HTML and CSS to the graphics designer camp.
- Invented XML (eXtensible Markup Language) which is a complete return to SGML (a bit simpler)
 - Very useful for inter-application communications as well, as we shall see
- Invented XSL (eXtensible Stylesheet Language) for formatting XML
 - in particular, XHTML (= strictly formatted HTML)
 - Goal of XSL:
 - be able to specify how browsers should display XHTML
 - be able to specify how XHTML should publish

HTML Standards

- HTML, first version (Berners-Lee) '92
 - An SGML(ISO8879) application
- HTML 2.0 (Berners-Lee, Dan Connolly)
 - produced by IETF (Internet Engineering Task Force), HTML Working group, RFC 1866 (Request for Comments)
- HTML 3.2 (Dave Raggett) '96
 - W3C
 - tables, applets, text-flow around images, ...
- HTML 4.0 (Raggett et. al.) '98
 - frames
- ➔ • **HTML 4.01, Dec 24, '99 (long)**
 - cleanup for use with XHTML 1.0
- ➔ • **XHTML 1.0 Jan. 2000 (short)**
 - based on XML rather than SGML
 - references HTML 4.01 for semantics of tags
 - references XML 1.0 for language syntax
 - provides XML DTDs for definitions

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Evolving Standards

- Designed to address client heterogeneity
 - XHTML Modularization, Apr., 2001 (long)
 - individually delimits and defines modules in XHTML 1.0
 - describes how to add new modules
 - XHTML Basic, Dec., 2000 (short)
 - minimal set of modules (e.g., for cellphones)
 - structure, text, hypertext, list, basic forms, basic tables, image, object, meta-info, link, base
 - XHTML 1.1 Mar. 2001 (short)
 - reformulation of XHTML 1.0 Strict based on modularization
 - ... more modules to come
 - frames, ...

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How W3C Works

- World Wide Web Consortium
 - created in October 1994
 - developing common protocols for the Web
- Members:
 - companies, gov't, standards bodies, ...
- the Team:
 - full-time employees, paid for by the Members.
 - Working out of MIT, INRIA, and Keio.
 - <http://www.w3.org/Consortium>

Syntax of XHTML 1.0

- Conforming to XML syntax ...
 - W3C XML 1.0, October 2000
- ... and 1 of 3 XHTML 1.0 DTD (Document Type Definition)
 - W3C XHTML 1.0 Jan. 2000
 - strict
 - layout-tag and frame-free. Use with CSS for layout
 - transitional
 - compatible with 4.01 no frames
 - e.g., `<body bgcolor="red">`
 - frameset
 - transitional + frames

Strict XHTML

```
prolog <?xml version="1.0" encoding="iso-8859-1"?>
      <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
        Frameset//EN" "DTD/xhtml11-frameset.dtd">
element <html xmlns="http://www.w3.org/1999/xhtml"
        xml:lang="en" lang="en">
      <head>
        <meta http-equiv="Content Type"
          content="text/html; charset=iso-8859-1"/>
        <title>A Document</title>
      </head>
      <body>
        <p>A paragraph</p>
      </body>
    </html>
```